

APPENDIX

IN THE SPECIFICATION:

On page 59, lines 13-28, please amend as follows:

One end of the cantilever arm 2456 is connected to the shaft 2453 of the cantilever arm actuator 2457, such as a pneumatic cylinder, a lead-screw actuator, or a servo-motor. The cantilever arm actuator 2457 is mounted on the mounting post 2454. The pivot joint 2459 pivotably connects the cantilever arm 2456 and the post cover 2454. Actuation of the cantilever arm actuator 2457 provides pivotal movement, as indicated by arrow A2 of the cantilever arm 2456 about the pivot joint 2459. Retracting the cantilever arm actuator 2457 results in the cantilever arm 2456 moving the head assembly 2410 away from the process cell 420, shown in FIG. 6. Moving the head assembly from the process cell provides spacing to remove and/or replace the process cell 420 from the electroplating process cell 240. When the head assembly is removed from the process cell, the substrate can be inserted into or removed from the head assembly. Rotating the head assembly 2410 about the pivot joint 2459 results in the substrate being angled relative to the electrolyte cell. When the cantilever arm actuator 2457 is extended, the cantilever arm 2456 moves the head assembly 2410 toward the process cell 420 to position the substrate in the head assembly 2410 in a processing position.

IN THE CLAIMS:

4. (Amended) [The apparatus of claim 1, further comprising] An apparatus for electro-chemically depositing a metal film on a seed layer disposed on a substrate, comprising:

a substrate holder configured to hold a substrate;
an electrolyte cell configured to receive the substrate in a processing position;
an actuator connected to the substrate holder, the actuator being configured to adjustably position the substrate relative to the electrolyte cell; and
a sensor configured to sense [that senses the] an electric current density across the seed layer.

5. (Amended) [The apparatus of claim 1, wherein the] An apparatus for electro-chemically depositing a metal film on a seed layer disposed on a substrate, comprising:

a substrate holder configured to hold a substrate;

an electrolyte cell [further comprises] having a body portion and an overflow portion, the overflow portion defin[es]ing an opening for receiving the substrate in [its] a processing position[.]; and

an actuator connected to the substrate holder, the actuator being configured to adjustably position[s] the substrate relative to the body portion of the electrolyte cell.

6. (Amended) [The apparatus of claim 4, wherein the adjustably positioning comprises bowing the substrate] An apparatus for electro-chemically depositing a metal film on a seed layer disposed on a substrate, comprising:

a substrate holder configured to hold a substrate;

an electrolyte cell configured to receive the substrate in a processing position;

an actuator connected to the substrate holder, the actuator being configured to bow the substrate relative to the electrolyte cell.

10. (Amended) [The method of claim 7, wherein said adjusting the position comprises adjusting the bowing of the substrate] A method of controlling uniformity in a deposition depth of a metal film from the center of a seed layer on a substrate to the periphery of the seed layer, the method comprising:

inserting a substrate having a seed layer into an electrolyte cell; and

bowing the substrate relative to the electrolyte cell.

11. (Amended) The method of claim [7] 10, wherein [the] sensing the uniformity of the electric current density is performed after the substrate has been removed from the electrolyte cell.

12. (Amended) [The] A method [of claim 7, wherein the adjusting the position comprises] for controlling uniformity of a deposition depth of a metal film from the center of a seed layer on a substrate to the periphery of the seed layer, the method comprising:

inserting a substrate having a seed layer into an electrolyte cell; and
adjusting the horizontal position of the substrate within the electrolyte cell.

16. (Amended) [The method of claim 13, wherein the] A method for electro-chemically depositing a metal film on a substrate having a metal seed layer, the method comprising:

disposing a substrate in an electrolyte cell [has] having a body portion and an overflow portion, the overflow portion defin[es]ing an opening for receiving the substrate in a processing position[.]; [the] and

adjustably positioning the substrate [is performed] relative to the body portion of the electrolyte cell.

17. (Amended) The method of claim [13] 16, wherein [the] adjustably positioning comprises adjusting the vertical height of the substrate.

22. (Amended) [The method of claim 19, wherein the adjustably positioning comprises] A method for controlling uniformity of deposition rate of a metal film on a substrate, the method comprising:

disposing a substrate in an electrolyte cell; and

adjusting the lateral position of the substrate relative to the electrolyte cell to control the deposition rate.

23. (Amended) [The method of claim 19, wherein the adjustably positioning comprises] A method for controlling uniformity of deposition rate of a metal film on a substrate, the method comprising:

disposing a substrate in an electrolyte cell; and

adjusting the curvature of the substrate relative to the electrolyte cell.

24. (Amended) The method of claim [19] 23, further comprising determining the uniformity of the deposition layer by measuring the thickness of the metal film.

25. (Amended) An apparatus for electro-chemically depositing a metal film on a substrate having a metal seed layer, comprising:

a substrate holder for holding the substrate;

an electrolyte cell [for receiving the substrate in a processing position, wherein the electrolyte cell further comprises] having a body portion and an overflow portion, the overflow portion defin[es]ing an opening for receiving [the substrate in its processing position, and the substrate holder adjustably positions the substrate relative to the body portion] the substrate in a processing position;

an actuator connected to the substrate holder for displacing the substrate holder in a substantially vertical direction to adjust the position of the substrate relative to the body portion of the electrolyte cell [to provide a desired uniformity of metal film deposition depth]; and

a metal deposition portion that provides for deposition of the metal film on the metal seed layer [on the substrate].